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Descriptive study of renal impairment in patients with osteoporosis in Denmark

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Objective:

The purpose of this study was to estimate the prevalence of renal impairment for osteoporotic patients, and compare demographic characteristics for osteoporotic patients across level of renal impairment.

Material and methods:

This cohort study is based on data from the Danish national health registries and blood measurements of estimated Glomerular Filtration Rate (eGFR) from three of five Danish regions. Last blood measurement of eGFR is used as index-date.

The inclusion criteria were:

- age ≥50 years
- AND either diagnosed with osteoporosis
- OR had a history of fracture
- OR a bone mass density (BMD) t-score of lumbar spine or femur neck < -2.5.

Stages of renal impairment ranged from normal to failure (KDOQI 1-5) measured by eGFR and a separate category of 'not recommended for BIS treatment (eGFR <35) equivalent to some patients in KDOQI stage 3 and all patients in KDOQI stages 4 and 5.

Results:

In total 7,336 patients were identified, of which 6,614 were women. The prevalence of renal failure (stage 5) amongst osteoporotic patients was 0.1%, and the prevalence of an eGFR<35 ('not recommended for BIS') was 3.6%. The median time from diagnosis of osteoporosis to measurement of eGFR was 7.2±5.1 years.

The mean age was 72.5±10.3 years. The age increased significantly with decreasing eGFR from 69.0±10.1 for stage 1 (normal) to 81.5±7.6 for stage 5 (failure) patients (p<0.001). Weight was significantly higher for KDOQI 3 (moderate renal impairment, eGFR 30-59) patients (p=0.021), while BMI similarly increased with decreasing eGFR (p<0.001).

For co-morbidities diabetes was significantly associated with decreased eGFR (p<0.001).

Conclusion:

Based on eGFR<35, bisphosphonate treatment would not be recommended in 3.6 % of osteoporotic patients due to renal impairment.